

**REMARKS**

Applicant respectfully requests further examination and reconsideration in view of the above amendments and the arguments below. Claims 5, 7, 12-17, 19, 20, 22-24, 28-30, 32, 33, 38-42 and 47-61 are pending. Within the Office Action, Claims 5, 7, 12-17, 19, 20, 22-24, 28-30, 32, 33, 38-42 and 47-61 have been rejected. Claims 5, 7, 12-17, 19, 20, 22-24, 28-30, 32, 33, 38-42 and 47-61 are now pending.

**Rejections Under 35 U.S.C. § 102(e):**

Within the Office Action, Claims 20, 22, 29, 30, 50, 52, 55-57, 60 and 61 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,717,947 to Ghodrat et al. (Ghodrat). The Applicants respectfully disagree. Ghodrat teaches a method of performing retransmission of an errant data packet within a real-time isochronous channel. Retransmission requests and decisions are made on a packet by packet basis. Ghodrat teaches that during the time interval for retransmission of an errant packet, the real-time isochronous stream continues uninterrupted. Ghodrat does not teach flow control functions such as “pause,” “stop,” or “reset” on a real-time isochronous channel. Ghodrat teaches a resend mechanism. [Ghodrat, col. 5, lines 18-20] Ghodrat does not teach a flow control mechanism as claimed in the pending claims. Ghodrat teaches the monitoring of the data packets within a stream of isochronous data packets at the receiving device for necessary retransmission. [Ghodrat, col. 6, lines 16-19] Ghodrat teaches using one of the isochronous channels for sending a retry packet which indicates which packet is to be resent. [Ghodrat, col. 6, lines 19-21 and col. 7, lines 36-53] As is recognized within the Office Action, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. Further, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat also does not teach setting an isochronous channel number field within the back channel flow control information block to indicate the isochronous channel used to send an isochronous back channel packet.

In contrast to the teachings of Ghodrat, the method of flow control of the present invention uses an isochronous channel for non real-time data streams and implementing control flow functions not previously applicable to real-time isochronous streams to achieve a more reliable data stream. A control mechanism uses a back channel for sending retransmission and flow control information from the receiving device to the transmitting device. In contrast to the

teachings of Ghodrat, the data stream is reset starting from a specified packet in the stream. The specified packet where the stream is restart from does not have to be the errant packet but could be from before the errant packet, starting at the errant packet, or after the errant packet. Further, all packets sent subsequent to the specified packet are also retransmitted in contrast to the teachings of Ghodrat where only the errant packet is retransmitted. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet.

Ghodrat teaches that the real-time stream runs without interruption even when an errant packet is detected. When the errant packet is resent, this retransmission occurs concurrently with the on going transmission of the real-time stream. Thus, potentially for the period when an errant packet is resent, the bandwidth requirement could be doubled for Ghodrat's system, because both the retransmitted packet and the real-time packet stream could be transmitting a packet at the same time. In contrast, the presently claimed invention resets the stream starting at a specified packet. Thus, the stream is stopped and restarted at a previous packet. Because the stream is stopped and restarted, there is never a point where two data packets, a data stream and a retransmission packet, are being concurrently transmitted.

With regard to configuring a transmitting plug on a receiving device for transmitting an isochronous back channel packet over an isochronous channel via the transmitting plug to a transmitter device, the following is cited within the Office Action:

Physical layer interface unit 40 generates signals to be transmitted on a communication medium 45. For example, communication medium 45 may be implemented as the physical layer cabling or backplane of an IEEE 1394 compliant serial bus. In system 50, all data paths are shown to be bidirectional. More details of the actual data paths used within system 50 are discussed in connection with FIG. 2. [Ghodrat, col. 5, lines 33-39]

The cited section of Ghodrat teaches nothing of *configuring a transmitting plug* on a receiving device. Furthermore, the cited section teaches nothing of *configuring a transmitting plug on a receiving device for transmitting an isochronous back channel packet over an isochronous channel via the transmitting plug to a transmitter device.*

Furthermore, the same section of Ghodrat [Col. 5, Lines 33-39] is also cited against: configuring a *receiving plug* on a *transmitting device* for *receiving* an isochronous back channel packet from a *receiving device*, wherein the isochronous back channel packet is received over an isochronous channel via the *receiving plug*. Applicant contends that the cited section of Ghodrat does not teach any elements of the claimed invention. Moreover, there is simply no way that both claim elements 1) configuring a transmitting plug and so on (from Claim 20) and 2) configuring a receiving plug and so on (from Claim 29) are taught in the single cited section of Ghodrat.

In contrast to the teachings of Ghodrat, the method of flow control of the present invention discloses proper plug configuration using the non real-time plug transfer information block is used to prepare the transmitting and receiving AV/C devices for non real-time data transfer. [Present Specification, page 19, lines 14-15]

With regard to packetizing flow control and retransmission information within the isochronous back channel packet, the following is cited within the Office Action:

The link layer is responsible for formatting data into packets for both asynchronous and isochronous data transfers. Asynchronous transfers are always acknowledged and may be resent as many times as specified by software if a receiver connected to the communication medium 45, the receiver sends a busy acknowledge back to the transmitter. [Ghodrat, col. 5, lines 61-67]

Thus, all that is taught in the cited section is that the link layer formats data into packets for asynchronous and isochronous data transfers, and that asynchronous transfers are acknowledged and resent if specified. However, Ghodrat does not teach anything about packetizing *flow control* and *retransmission information* within the *isochronous* back channel packet.

With regard to transmitting the isochronous back channel packet from the receiving device over the isochronous back channel via the transmitting plug, the following is cited within the Office Action:

Unlike presently available systems, link layer transceiver 25 is also operative to process isochronous-retry packets. An isochronous-retry packet is a packet sent from one or more nodes 160, which have missed the packet due to insufficient buffer space or have detected a received isochronous packet to be errant. [Ghodrat, col. 7, lines 36-41]

Ghodrat teaches nothing of transmitting the *isochronous back channel packet* from the *receiving device* over the *isochronous back channel* via the *transmitting plug*.

With regard to regulating transmission of the stream of isochronous data packets as determined by the control instruction, wherein the stream of isochronous data packets is transmitted in non real-time, “asynchronous data transfers” [Ghodrat, col. 5, lines 40-41] is cited within the Office Action. It is stated within the Office Action that “asynchronous communication is done in non real-time.” [Office Action, page 3] However, the claimed language of at least Claim 29 is: “wherein the stream of *isochronous* data packets is transmitted in non real-time.” Furthermore, it is stated within the Present Specification,

It is important that the A/V digital content is packetized as isochronous data packets, and not asynchronous data packets, since isochronous data packets adhere to 5C DTCP DTLA rules for transmitting and receiving encrypted A/V digital content. According to 5C DTCP DTLA licensing rules, encrypted A/V digital data cannot be transmitted using asynchronous data packets. [Present Specification, page 15, lines 7-11]

Thus, Ghodrat clearly does not teach regulating transmission of the stream of isochronous data packets as determined by the control instruction, wherein the stream of *isochronous* data packets is transmitted in non real-time.

The independent Claim 20 is directed to a method of transmitting flow control and retransmission information. The method of Claim 20 comprises configuring a transmitting plug on a receiving device for transmitting an isochronous back channel packet over an isochronous channel via the transmitting plug to a transmitting device, determining flow control and retransmission information based on the status of a received isochronous data packet at the receiving device, wherein the received isochronous data packet is one of a stream of isochronous data packets transmitted from the transmitting device to the receiving device, wherein the stream of isochronous data packets is transmitted in non real-time, packetizing flow control and retransmission information within the isochronous back channel packet and transmitting the isochronous back channel packet from the receiving device over the isochronous back channel via the transmitting plug. As described above, Ghodrat does not teach a back channel packet for indicating flow control and retransmission information. Ghodrat also does not teach configuring a transmitting plug on a receiving device for transmitting an isochronous back channel packet over an isochronous channel via the transmitting plug to a transmitting device. Ghodrat does not teach transmitting the isochronous back channel packet from the receiving device over the isochronous back channel via the transmitting plug. For at least these reasons, the independent Claim 20 is allowable over the teachings of Ghodrat.

Claim 22 is dependent on the independent Claim 20. As described above, the independent Claim 20 is allowable over the teachings of Ghodrat. Accordingly, Claim 22 is also allowable as being dependent on an allowable base claim.

The independent Claim 29 is directed to a method of receiving flow control and retransmission information. The method of Claim 29 comprises configuring a receiving plug on a transmitting device for receiving an isochronous back channel packet from a receiving device, wherein the isochronous back channel packet is received over an isochronous channel via the receiving plug, receiving the isochronous back channel packet via the receiving plug, reading flow control and retransmission information included within the isochronous back channel packet wherein the flow control and retransmission information relates to a stream of isochronous data packets transmitted from the transmitting device to the receiving device and provides a control instruction to the transmitting device to regulate transmission of the stream of isochronous data packets and regulating transmission of the stream of isochronous data packets as determined by the control instruction, wherein the stream of isochronous data packets is transmitted in non real-time. As described above, Ghodrat does not teach a back channel packet for indicating flow control and retransmission information. Ghodrat also does not teach configuring a receiving plug on a transmitting device for receiving an isochronous back channel packet from a receiving device, wherein the isochronous back channel packet is received over an isochronous channel via the receiving plug. Ghodrat also does not teach regulating transmission of the stream of isochronous data packets as determined by the control instruction, wherein the stream of isochronous data packets is transmitted in non real-time. For at least these reasons, the independent Claim 29 is allowable over the teachings of Ghodrat.

The independent Claim 30 is directed to a method of configuring a plug to support an isochronous back channel. The method of Claim 30 comprises embedding a back channel flow control information block within a plug configuration information block, wherein the back channel flow control information block is embedded within a non real-time plug transfer information block which is embedded within the plug configuration information block, defining a back channel information type within the back channel flow control information block, wherein the back channel information type indicates an isochronous back channel control mechanism for providing a flow control and retransmission control instruction and setting an isochronous channel number field within the back channel flow control information block to indicate the isochronous channel used to send an isochronous back channel packet, wherein the isochronous back channel packet includes the control instruction which is used to regulate a transmission of a

stream of isochronous data packets. As described above, Ghodrat does not teach a back channel packet for indicating flow control and retransmission information. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. Ghodrat also does not teach setting an isochronous channel number field within the back channel flow control information block to indicate the isochronous channel used to send an isochronous back channel packet. For at least these reasons, the independent Claim 30 is allowable over the teachings of Ghodrat.

The independent Claim 50 is directed to a method of performing retransmission and flow control. The method of Claim 50 comprises configuring an isochronous channel between a transmitting device and a receiving device as an isochronous back channel for providing retransmission and flow control information from the receiving device to the transmitting device related to a stream of isochronous data packets transmitted from the transmitting device to the source device, wherein the stream of isochronous data packets is transmitted in non real-time, monitoring the stream of isochronous data packets received at the receiving device for necessary retransmission or flow control, configuring an isochronous back channel packet for indicating a retransmission or flow control function to perform and transmitting the isochronous back channel packet from the receiving device to the transmitting device over the isochronous back channel. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. Ghodrat also does not teach configuring an isochronous channel between a transmitting device and a receiving device as an isochronous back channel for providing retransmission and flow control information from the receiving device to the transmitting device related to a stream of isochronous data packets transmitted from the transmitting device to the source device, wherein the stream of isochronous data packets is transmitted in non real-time. For at least these reasons, the independent Claim 50 is allowable over the teachings of Ghodrat.

The independent Claim 52 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 52 comprises a configuring circuit to configure a plug to communicate an isochronous back channel packet over an isochronous back

channel, a packetizing circuit to packetize flow control and retransmission information within the isochronous back channel packet, a transceiver circuit configured to communicate the isochronous back channel packet via the plug, a de-packetizing circuit to extract the flow control and retransmission information from the isochronous back channel packet and a controller coupled to the configuring circuit, the packetizing circuit, the transceiver circuit, and the de-packetizing circuit to determine a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and apply the control instruction to the determined stream of isochronous data packets, wherein the stream of isochronous data packets is transmitted in non real-time. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. Ghodrat also does not teach a configuring circuit to configure a plug to communicate an isochronous back channel packet over an isochronous back channel. Ghodrat also does not teach wherein the stream of isochronous data packets is transmitted in non real-time. For at least these reasons, the independent Claim 52 is allowable over the teachings of Ghodrat.

The independent Claim 55 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 55 comprises a configuring circuit to configure a plug to transmit an isochronous back channel packet over an isochronous back channel, a packetizing circuit to packetize flow control and retransmission information within the isochronous back channel packet, a transceiver circuit configured to transmit the isochronous back channel packet via the plug, wherein the transceiver circuit is configured to transmit isochronous data packets in non real-time via the plug, a de-packetizing circuit to extract the flow control and retransmission information from the isochronous back channel packet and a controller coupled to the configuring circuit, the packetizing circuit, the transceiver circuit, and the de-packetizing circuit to determine a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and apply the control instruction to the determined stream of isochronous data packets. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend

mechanism for resending only the errant packet. Ghodrat also does not teach a configuring circuit to configure a plug to transmit an isochronous back channel packet over an isochronous back channel. Ghodrat also does not teach wherein the transceiver circuit is configured to transmit isochronous data packets in non real-time via the plug. For at least these reasons, the independent Claim 55 is allowable over the teachings of Ghodrat.

The independent Claim 56 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 56 comprises a configuring circuit to configure a plug to receive an isochronous back channel packet over an isochronous back channel, a packetizing circuit to packetize flow control and retransmission information within the isochronous back channel packet, a transceiver circuit configured to receive the isochronous back channel packet via the plug, wherein the transceiver circuit is configured to receive isochronous data packets in non real-time via the plug, a de-packetizing circuit to extract the flow control and retransmission information from the isochronous back channel packet and a controller coupled to the configuring circuit, the packetizing circuit, the transceiver circuit, and the de-packetizing circuit to determine a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and apply the control instruction to the determined stream of isochronous data packets. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. Ghodrat also does not teach a configuring circuit to configure a plug to receive an isochronous back channel packet over an isochronous back channel. Ghodrat also does not teach wherein the transceiver circuit is configured to receive isochronous data packets in non real-time via the plug. For at least these reasons, the independent Claim 56 is allowable over the teachings of Ghodrat.

The independent Claim 57 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 57 comprises means for configuring a plug to communicate an isochronous back channel packet over an isochronous back channel, means for packetizing flow control and retransmission information within the isochronous back channel packet, means for communicating the isochronous back channel packet via the plug, means for extracting the flow control and retransmission information from the isochronous back channel packet and means for controlling coupled to the means for configuring, the means for



packetizing, the means for communicating, and the means for de-packetizing, wherein the means for controlling determines a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and applies the control instruction to the determined stream of isochronous data packets, wherein the stream of isochronous data packets is transmitted in non real-time. As described above, Ghodrati does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrati does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrati teaches a resend mechanism for resending only the errant packet. Ghodrati also does not teach means for configuring a plug to communicate an isochronous back channel packet over an isochronous back channel. Ghodrati also does not teach wherein the stream of isochronous data packets is transmitted in non real-time. For at least these reasons, the independent Claim 57 is allowable over the teachings of Ghodrati.

The independent Claim 60 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 60 comprises means for configuring a plug to transmit an isochronous back channel packet over an isochronous back channel, means for packetizing flow control and retransmission information within the isochronous back channel packet, means for communicating the isochronous back channel packet via the plug, wherein the means for communicating is configured to transmit isochronous data packets in non real-time via the plug, means for extracting the flow control and retransmission information from the isochronous back channel packet and means for controlling coupled to the means for configuring, the means for packetizing, the means for communicating, and the means for de-packetizing, wherein the means for controlling determines a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and applies the control instruction to the determined stream of isochronous data packets. As described above, Ghodrati does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrati does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrati teaches a resend mechanism for resending only the errant packet. Ghodrati also does not teach means for configuring a plug to transmit an isochronous back channel packet over an isochronous back

channel. Ghodrat also does not teach wherein the means for communicating is configured to transmit isochronous data packets in non real-time via the plug. For at least these reasons, the independent Claim 60 is allowable over the teachings of Ghodrat.

The independent Claim 61 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 61 comprises means for configuring a plug to receive an isochronous back channel packet over an isochronous back channel, means for packetizing flow control and retransmission information within the isochronous back channel packet, means for communicating the isochronous back channel packet via the plug, wherein the means for communicating is configured to receive isochronous data packets in non real-time via the plug, means for extracting the flow control and retransmission information from the isochronous back channel packet and means for controlling coupled to the means for configuring, the means for packetizing, the means for communicating, and the means for de-packetizing, wherein the means for controlling determines a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and applies the control instruction to the determined stream of isochronous data packets. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. Ghodrat also does not teach means for configuring a plug to receive an isochronous back channel packet over an isochronous back channel. Ghodrat also does not teach wherein the means for communicating is configured to receive isochronous data packets in non real-time via the plug. For at least these reasons, the independent Claim 61 is allowable over the teachings of Ghodrat.

**Rejections Under 35 U.S.C. § 103:**

Within the Office Action, Claims 5, 51, 53, 54, 58 and 59 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ghodrat in view of U.S. Patent No. 6,411,986 to Susai et al. (Susai). The Applicants respectfully disagree.

As described above, Ghodrat teaches a method of performing retransmission of an errant data packet within a real-time isochronous channel. Retransmission requests and decisions are made on a packet by packet basis. Ghodrat teaches that during the time interval for retransmission of an errant packet, the real-time isochronous stream continues uninterrupted.

Ghodrat does not teach flow control functions such as “pause,” “stop,” or “reset” on a real-time isochronous channel. Ghodrat teaches a resend mechanism. [Ghodrat, col. 5, lines 18-20] Ghodrat does not teach a flow control mechanism as claimed in the pending claims. Ghodrat teaches the monitoring of the data packets within a stream of isochronous data packets at the receiving device for necessary retransmission. [Ghodrat, col. 6, lines 16-19] Ghodrat teaches using one of the isochronous channels for sending a retry packet which indicates which packet is to be resent. [Ghodrat, col. 6, lines 19-21 and col. 7, lines 36-53] As is recognized within the Office Action, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. Further, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat also does not teach setting an isochronous channel number field within the back channel flow control information block to indicate the isochronous channel used to send an isochronous back channel packet.

Susai teaches an Internet client-server multiplexer. The apparatus is implemented within an interface unit connecting a plurality of servers to the Internet, which is connected to a plurality of clients. According to a "connection pooling" aspect of the invention, the interface unit opens and maintains connections with the servers and handles the opening and closing of connections with clients accessing the servers, thereby freeing the servers of the processing load incurred by opening and closing connections. According to a "connection distribution" aspect of the invention, the interface unit examines the path names within requests received from clients and selects the server hosting the requested information according to the path names. [Susai, Abstract] More specifically, it is apparent from the title “Internet client-server multiplexer,” the background and throughout the detailed description, Susai teaches TCP/IP packets. Susai teaches nothing about isochronous packets transmitted over an IEEE 1394 serial bus network. As is well known in the art, TCP/IP packets transmitted over a network such as the Internet are completely unrelated to isochronous packets transmitted over an IEEE 1394 serial bus network. Therefore, Susai does not teach a back channel packet for indicating a retransmission or flow control function to perform. Moreover, Susai does not teach wherein the back channel packet includes a control instruction that instructs the transmitting device to reset transmission of the stream of data packets starting from a specified packet within the stream of data packets. Susai also does not teach a dbc field that identifies the specific packet within the stream of data packets.

Furthermore, since Susai is directed to the TCP/IP protocol which is completely unrelated to the IEEE 1394 standard, Ghodrat and Susai are nonanalogous art. Therefore, the combination of Ghodrat and Susai is improper. One of ordinary skill in the art would have no motivation to combine transmitting isochronous packets over an IEEE 1394 serial bus network with transmitting TCP/IP packets over the Internet.

Moreover, the cited section of Susai [Susai, col. 5, lines 8-20] within the Office Action provides no hint, teaching or suggestion that Ghodrat and Susai should be combined. The cited section of Susai actually proves that they should not be combined as it is strictly focused on the TCP portion of a TCP/IP packet.

The independent Claim 5 is directed to a method of performing retransmission and flow control. The method of Claim 5 comprises configuring a back channel between a transmitting device and a receiving device for providing retransmission and flow control information from the receiving device to the transmitting device related to a stream of isochronous data packets transmitted from the transmitting device to the source device, monitoring the stream of isochronous data packets received at the receiving device for necessary retransmission or flow control, configuring a back channel packet for indicating a retransmission or flow control function to perform, wherein the back channel packet includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets starting from a specified packet within the stream of isochronous data packets, and further wherein the back channel packet includes a dbc field that identifies the specific packet within the stream of isochronous data packets and transmitting the back channel packet from the receiving device to the transmitting device over the back channel. As described above, the combination of Ghodrat and Susai is improper. Even if considered proper, Ghodrat, Susai and their combination do not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat, Susai and their combination do not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. For at least these reasons, the independent Claim 5 is allowable over the teachings of Ghodrat, Susai and their combination.

The independent Claim 51 is directed to a method of performing retransmission and flow control. The method of Claim 51 comprises configuring an isochronous channel between a transmitting device and a receiving device as an isochronous back channel for providing retransmission and flow control information from the receiving device to the transmitting device related to a stream of isochronous data packets transmitted from the transmitting device to the

source device, monitoring the stream of isochronous data packets received at the receiving device for necessary retransmission or flow control, configuring an isochronous back channel packet for indicating a retransmission or flow control function to perform and transmitting the isochronous back channel packet from the receiving device to the transmitting device over the isochronous back channel, wherein the isochronous back channel packet includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets starting from a specified packet within the stream of isochronous data packets and a dbc field that identifies the specific packet within the stream of isochronous data packets. As described above, the combination of Ghodrat and Susai is improper. Even if considered proper, Ghodrat, Susai and their combination do not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat, Susai and their combination do not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. For at least these reasons, the independent Claim 51 is allowable over the teachings of Ghodrat, Susai and their combination.

The independent Claim 53 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 53 comprises a configuring circuit to configure a plug to communicate an isochronous back channel packet over an isochronous back channel, a packetizing circuit to packetize flow control and retransmission information within the isochronous back channel packet, a transceiver circuit configured to communicate the isochronous back channel packet via the plug, a de-packetizing circuit to extract the flow control and retransmission information from the isochronous back channel packet, a controller coupled to the configuring circuit, the packetizing circuit, the transceiver circuit, and the de-packetizing circuit to determine a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and apply the control instruction to the determined stream of isochronous data packets, wherein the control instruction is an indication to reset transmission of the stream of isochronous data packets starting from a specified packet within the stream of isochronous data packets and further wherein the isochronous back channel packet includes a dbc field that identifies the specific packet within the stream of isochronous data packets. As described above, the combination of Ghodrat and Susai is improper. Even if considered proper, Ghodrat, Susai and their combination do not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat, Susai and their combination do not teach a back

channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. For at least these reasons, the independent Claim 53 is allowable over the teachings of Ghodrat, Susai and their combination.

Claim 54 is dependent on the independent Claim 53. As described above, the independent Claim 53 is allowable over the teachings of Ghodrat, Susai and their combination. Accordingly, Claim 54 is also allowable as being dependent on an allowable base claim.

The independent Claim 58 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 58 comprises means for configuring a plug to communicate an isochronous back channel packet over an isochronous back channel, means for packetizing flow control and retransmission information within the isochronous back channel packet, means for communicating the isochronous back channel packet via the plug, means for extracting the flow control and retransmission information from the isochronous back channel packet and means for controlling coupled to the means for configuring, the means for packetizing, the means for communicating, and the means for de-packetizing, wherein the means for controlling determines a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and applies the control instruction to the determined stream of isochronous data packets, wherein the control instruction is an indication to reset transmission of the stream of isochronous data packets starting from a specified packet within the stream of isochronous data packets and further wherein the isochronous back channel packet includes a dbc field that identifies the specific packet within the stream of isochronous data packets. As described above, the combination of Ghodrat and Susai is improper. Even if considered proper, Ghodrat, Susai and their combination do not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat, Susai and their combination do not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. For at least these reasons, the independent Claim 58 is allowable over the teachings of Ghodrat, Susai and their combination.

Claim 59 is dependent on the independent Claim 58. As described above, the independent Claim 58 is allowable over the teachings of Ghodrat, Susai and their combination. Accordingly, Claim 59 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 7, 12-17, 19, 23, 24, 28, 32, 33, 38-42 and 47-49 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over in view of U.S. Patent No. 7,046,627 to Dejanovic et al. (Dejanovic). The Applicants respectfully disagree.

Although the initial paragraph of the rejection for Claims 7, 12-17, 19, 23, 24, 28, 32, 33, 38-42 and 47-49 cites Ghodrat in view of Susai in the Office Action [Page 14], Applicant is assuming the rejection is still based on Dejanovic since the subsequent paragraphs each directed to the specific claims all refer to Dejanovic.

As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. As recognized within the Office Action, Ghodrat also does not teach that a back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of isochronous data packets.

Dejanovic teaches a system for the accumulating traffic information and distributing flow control information within a packet switching system. [Dejanovic, col 5, lines 26-29]. Packet switching systems are inherently not real-time. Packet switching systems do not allocate a fixed bandwidth to a given connection. An isochronous channel is allocated a fixed bandwidth that is always available for use by a channel. Within Dejanovic, no mention is made of *isochronous* channels, the allocation of a fixed bandwidth to a channel, nor any mention of real-time data transfers. Therefore, Dejanovic does not directly or indirectly teach, motivate, or suggest isochronous data channels as taught by Ghodrat. Thus, there is no teaching, motivation, or suggestion to combine Ghodrat and Dejanovic. Furthermore, even if combined, neither Ghodrat nor Dejanovic teaches wherein the back channel packet includes a control instruction that instructs the transmitting device to *stop transmitting the stream of isochronous data packets*. As described above, Dejanovic does not teach or suggest anything regarding *isochronous* data packets.

Within the Office Action, it is stated that it would have been obvious to one having ordinary skill in the art to form the method of flow control for data transport of isochronous packets over and IEEE 1394-2000 serial bus network by the combination of Ghodrat in light of Dejanovic. The applicants respectfully disagree with this conclusion.

It appears there is some confusion in the Office Action regarding when two or more references are combinable to form an obvious rejection. According to the MPEP, there must be some teaching, suggestion or motivation, applied without rigidity, to combine the references. There is no teaching, suggestion or motivation cited in the Office Action. All that is cited within the Office Action as to why the combination would have been obvious is [Dejanovic, col. 9, lines

40-42] which teaches, “[f]low control information can then be sent to packet sources to slow down or stop sending traffic until the congestion condition no longer exists.” This provides no teaching, suggestion or motivation as to why the combination would have been obvious to one skilled in the art. All that can be determined from this cited section is that impermissible hindsight was used to possibly find some aspects of the claimed invention in one reference and possibly find other aspects of the claimed invention in another reference and then piece them together to form the present rejection. This is simply not proper. There must be an independent reason, specifically, a teaching, suggestion or motivation, as to why the two references should be combined.

As alluded to above, this is a classic case of impermissibly using hindsight to make a rejection based on obviousness. The Court of Appeals for the Federal Circuit has stated that “it is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” In Re Fritch, 972 F.2d, 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). As discussed above, Ghodrat teaches real-time isochronous channels using a back channel to retransmit errant data. Dejanovic teaches a system for accumulating traffic information and distributing flow control information within a packet switching system. The real-time nature of the system of Ghodrat precludes the use of a control-flow system as described by Dejanovic. Dejanovic teaches a packet switching system which is inherently not real-time. Packet switching systems do not allocate a fixed bandwidth to a given connection. Isochronous systems allocated a fixed bandwidth that can be used by a channel. No mention is made in Dejanovic of isochronous channels, the allocation of a fixed bandwidth to a channel, nor of real-time data transfers. Therefore, Dejanovic does not directly or indirectly teach, motivate, or suggest the use of isochronous data channels. Thus, one of ordinary skill in the art would have had no motivation to combine Ghodrat real-time isochronous retransmission scheme to include the control flow as described in Dejanovic.

It is well settled that to establish a *prima facie* case of obviousness, three basic criteria must be met:

- 1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
- 2) there must be a reasonable expectation of success; and



- 3) the prior art reference, or references, must teach or suggest all the claim limitations. MPEP § 2143.

The burden of establishing a *prima facie* case of obviousness based on the teachings of Ghodrat in view of Dejanovic has not been met within the Office Action. Accordingly, the rejection of Claims 7, 12-17, 19, 23, 24, 28, 32, 33, 38-42 and 47-49 based on the combination of Ghodrat and Dejanovic, is not proper and should be withdrawn.

Further, there is no expectation of success of the combination of Ghodrat and Dejanovic. Such combination creates a real-time isochronous channel with control flow functions. As stated above, control flow on a real-time isochronous channel destroys the real-time nature of the isochronous channel and thus would not have an expectation of functioning.

Even if considered proper, the combination of Ghodrat and Dejanovic does not teach the presently claimed invention. As described above, Ghodrat does not teach a back channel packet for indicating a retransmission or flow control function to perform. Dejanovic also does not teach a back channel packet for indicating a retransmission or flow control function to perform. Accordingly, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, Ghodrat does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of *isochronous* data packets. Ghodrat teaches a resend mechanism for resending only the errant packet. Dejanovic also does not teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of *isochronous* data packets. Accordingly, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of *isochronous* data packets. Neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets.

The independent Claim 7 is directed to a method of performing retransmission and flow control. The method of Claim 7 comprises configuring a back channel between a transmitting device and a receiving device for providing retransmission and flow control information from the receiving device to the transmitting device related to a stream of isochronous data packets transmitted from the transmitting device to the source device, monitoring the stream of isochronous data packets received at the receiving device for necessary retransmission or flow control, configuring a back channel packet for indicating a retransmission or flow control

function to perform, wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of isochronous data packets and transmitting the back channel packet from the receiving device to the transmitting device over the back channel. As described above, the combination of Ghodrat and Dejanovic is improper. Even if considered proper, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Furthermore, neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets. For at least these reasons, the independent Claim 7 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

The independent Claim 12 is directed to a method of performing retransmission and flow control. The method of Claim 12 comprises configuring an isochronous channel between a transmitting device and a receiving device as an isochronous back channel for providing retransmission and flow control information from the receiving device to the transmitting device related to a stream of isochronous data packets transmitted from the transmitting device to the source device, monitoring the stream of isochronous data packets received at the receiving device for necessary retransmission or flow control, configuring an isochronous back channel packet for indicating a retransmission or flow control function to perform wherein the isochronous back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of isochronous data packets and transmitting the isochronous back channel packet from the receiving device to the transmitting device over the isochronous back channel. As described above, the combination of Ghodrat and Dejanovic is improper. Even if considered proper, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Furthermore, neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets. For at least these reasons, the

independent Claim 12 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

Claims 13-17 and 19 are dependent on the independent Claim 12. As described above, the independent Claim 12 is allowable over the teachings of Ghodrat, Dejanovic and their combination. Accordingly, Claims 13-17 and 19 are all also allowable as being dependent on an allowable base claim.

The independent Claim 23 is directed to a method of transmitting flow control and retransmission information. The method of Claim 23 comprises configuring a transmitting plug on a receiving device for transmitting an isochronous back channel packet over an isochronous channel via the transmitting plug to a transmitting device, determining flow control and retransmission information based on the status of a received isochronous data packet at the receiving device, wherein the received isochronous data packet is one of a stream of isochronous data packets transmitted from the transmitting device to the receiving device, wherein the status of the received isochronous data packet indicates that the receiving device is not capable of receiving the stream of isochronous data packets and instructs the transmitting device to stop transmitting the stream of isochronous data packets, packetizing flow control and retransmission information within the isochronous back channel packet and transmitting the isochronous back channel packet from the receiving device over the isochronous back channel via the transmitting plug. As described above, the combination of Ghodrat and Dejanovic is improper. Even if considered proper, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Furthermore, neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets. For at least these reasons, the independent Claim 23 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

The independent Claim 24 is directed to a method of transmitting flow control and retransmission information. The method of Claim 24 comprises configuring a transmitting plug on a receiving device for transmitting an isochronous back channel packet over an isochronous channel via the transmitting plug to a transmitting device, determining flow control and retransmission information based on the status of a received isochronous data packet at the

receiving device, wherein the received isochronous data packet is one of a stream of isochronous data packets transmitted from the transmitting device to the receiving device, wherein the status of the received isochronous data packet indicates that the receiving device is capable of resuming reception of the stream of isochronous data packets and instructs the transmitting device to restart transmission of the stream of isochronous data packets starting from a specified packet within the stream of isochronous data packets, packetizing flow control and retransmission information within the isochronous back channel packet and transmitting the isochronous back channel packet from the receiving device over the isochronous back channel via the transmitting plug. As described above, the combination of Ghodrat and Dejanovic is improper. Even if considered proper, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. For at least these reasons, the independent Claim 24 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

The independent Claim 28 is directed to a method of receiving flow control and retransmission information. The method of Claim 28 comprises configuring a receiving plug on a transmitting device for receiving an isochronous back channel packet from a receiving device, wherein the isochronous back channel packet is received over an isochronous channel via the receiving plug, receiving the isochronous back channel packet via the receiving plug, reading flow control and retransmission information included within the isochronous back channel packet wherein the flow control and retransmission information relates to a stream of isochronous data packets transmitted from the transmitting device to the receiving device and provides a control instruction to the transmitting device to regulate transmission of the stream of isochronous data packets and regulating transmission of the stream of isochronous data packets as determined by the control instruction, wherein the control instruction instructs the transmitting device to stop transmitting the stream of isochronous data packets. As described above, the combination of Ghodrat and Dejanovic is improper. Even if considered proper, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Furthermore, neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes

a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets. For at least these reasons, the independent Claim 28 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

The independent Claim 32 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 32 comprises a configuring circuit to configure a plug to communicate an isochronous back channel packet over an isochronous back channel, a packetizing circuit to packetize flow control and retransmission information within the isochronous back channel packet, a transceiver circuit configured to communicate the isochronous back channel packet via the plug, a de-packetizing circuit to extract the flow control and retransmission information from the isochronous back channel packet and a controller coupled to the configuring circuit, the packetizing circuit, the transceiver circuit, and the de-packetizing circuit to determine a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and apply the control instruction to the determined stream of isochronous data packets, wherein the control instruction is an indication to stop transmitting the stream of isochronous data packets. As described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Furthermore, neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets. For at least these reasons, the independent Claim 32 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

Claims 33 and 38-40 are dependent on the independent Claim 32. As described above, the independent Claim 32 is allowable over the teachings of Ghodrat, Dejanovic and their combination. Accordingly, Claims 33 and 38-40 are all also allowable as being dependent on an allowable base claim.

The independent Claim 41 is directed to an apparatus for communicating flow control and retransmission information. The apparatus of Claim 41 comprises means for configuring a plug to communicate an isochronous back channel packet over an isochronous back channel, means for packetizing flow control and retransmission information within the isochronous back channel packet, means for communicating the isochronous back channel packet via the plug,

means for extracting the flow control and retransmission information from the isochronous back channel packet and means for controlling coupled to the means for configuring, the means for packetizing, the means for communicating, and the means for de-packetizing, wherein the means for controlling determines a control instruction and a stream of isochronous data packets to which the control instruction is applied from the flow control and retransmission information and applies the control instruction to the determined stream of isochronous data packets, wherein the control instruction is an indication to stop transmitting the stream of isochronous data packets. As described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet for indicating a retransmission or flow control function to perform. As further described above, neither Ghodrat, Dejanovic nor their combination teach a back channel packet that includes a control instruction that instructs the transmitting device to reset transmission of the stream of isochronous data packets. Furthermore, neither Ghodrat, Dejanovic nor their combination teach wherein the back channel packet includes a control instruction that instructs the transmitting device to stop transmitting the stream of *isochronous* data packets. For at least these reasons, the independent Claim 41 is allowable over the teachings of Ghodrat, Dejanovic and their combination.

Claims 42 and 47-49 are dependent on the independent Claim 41. As described above, the independent Claim 41 is allowable over the teachings of Ghodrat, Dejanovic and their combination. Accordingly, Claims 42 and 47-49 are all also allowable as being dependent on an allowable base claim.

Applicants respectfully submit that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,  
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